

## **Section 6     Sevier River Basin MANAGEMENT**

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# Section Six    Sevier River Basin - State Water Plan

## Management

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**Management of the Sevier River Basin water resources has evolved from fights with shovels and guns to litigation, stipulation and decrees; and recently to more cooperative efforts.**

### 6.1    INTRODUCTION

The management of agricultural water in the Sevier River system has been controversial almost since the area was settled. Management of water in Pahvant Valley has been less contested historically, but is becoming more intense. This section describes the management of the Sevier River Basin water resources. Management of the water is carried out under the auspices of stipulations, decrees, filings and certifications presently in place. A water user may not sell, give away, waste or otherwise dispose of surplus water. This water must remain in the stream for other appropriators.

An increasing proportion of the management problems relate to domestic water use and filings. Also, there is no point “de minimus” where the effects of a change in diversions would be so small that compensation or adjustments can be ignored.

### 6.2    SETTING

In the Sevier River Basin, water was first managed by informal groups. Later, irrigators organized more formal groups, such as mutual irrigation companies.

Culinary water systems were established soon after settlement by communities to take care of domestic needs. They now operate under rules and guidelines established by state and federal standards administered by the Division of Drinking Water, Division of Water Quality and local boards of health.

Various means have been used to determine water rights. At one time, the tributary streams were split into fractional parts. The general practice around 1900 was to award water use by

the capacity of a ditch or canal. Later, cubic feet per second became the standard practice for measurement. Regardless of the method, there were still frequent conflicts.

The regimen of streams is highly variable, not only from month to month but from year to year. It soon became apparent there was a need for reservoirs to regulate and store water for irrigation. The first reservoir constructed was Scipio Reservoir in 1860.

The next phase was inevitable. Litigation started in 1886 to determine ownership of the waters of Bill Allreds Creek, a tributary to the San Pitch River.<sup>77</sup> Thus early in the history of water use, the civil courts became involved to settle disputes.

A significant event occurred when the Deseret and the Learnington Irrigation companies filed litigation against all the water users up to the West View Diversion in Sevier County alleging upstream diversions were infringing on their rights. The District Court threw the case out because the alleged violations crossed a county line. This ruling was appealed to the Utah Supreme Court in 1898. They ruled “where an act committed in one county caused injury to realty in another, suit might be brought in either, and not necessarily only in that county in which the resulting injury occurs.” This made it clear the broader authority of the state was needed to control the use of water. This eventually resulted in the Higgins Decree of 1901. This decree adjudicated the primary water of the Sevier River main stem from the West View Canal to Gunnison Bend Reservoir.

The Morse Decree of 1906 was instigated by the case of Richfield Irrigation Company, et al, vs. Circleville Irrigation Company, et al. This decree adjudicated all the primary waters of the Sevier River main stem from Vermillion Dam to the headwaters.

In 1914, a plan was adopted for a cooperative study of the entire river system by the U.S.

Geological Survey and the State Engineer. The river was divided into three parts: (1) All of the river system above the confluence of the East Fork and the Sevier River (Piute Reservoir); (2) from this confluence to the **Westview** Canal diversion near Redmond; and (3) the remaining lower part of the river system. Each of the parts were regulated by reservoirs.

From the time this study was initiated in 1914 until the Cox Decree in 1936, distribution of most of the primary water rights of the Sevier River system was made under provisions of the Morse Decree and the Higgins Decree with stipulations made in the early 1930s. This left about 22 miles between the Vermillion Diversion and the West View Diversion without a decree. The only diversion in this reach was at the Rocky Ford Reservoir so essentially the entire river was covered.

**Richland** Irrigation Company requested adjudication of its rights on the lower Sevier River system in 1916. Before this could be done, the State Engineer, George M. Bacon, instigated a study to determine the factual situation of all the water rights along the Sevier River System. Bacon's fact finding study was completed in 1926 and is commonly known as "Bacon's Bible." Bacon's Bible lists the acreage under each right so the beneficial use could be recommended.

By this time, there had been over 40 court decrees rendered on suits concerning water rights on the Sevier River System. As part of and prior to the time the final determination was completed, water users along the Sevier River and its tributaries had filed claims regarding their water rights in the Fifth Judicial District Court at Fillmore.

In the spring of 1926, priorities of Piute and Sevier Bridge reservoirs were brought to trial in the Fourth Judicial District. The participants in this case exceeded the capacity of the court room in Fillmore, so the trial was moved to the House of Representatives Chambers in the State Capitol building at Salt Lake City. The cost of litigating the case to this point was about \$350,000 and the documents filled a pickup truck. The decision awarded the owners of Sevier Bridge Reservoir a

first priority for storage water of 89,280 acre-feet against Piute Reservoir. The time and expense expended for this one determination indicated the need to expedite the settlement on the remaining 700-800 claims on the river.

Later on, two committees were formed; one on the upper Sevier River and one on the lower; each working independent of the other. In addition, another committee was appointed to work out the rights between Piute Reservoir and Sevier Bridge Reservoir. The outcome of the latter committee awarded the rights shown in Table 6-1.

The first two committees only made minor changes in the Higgins and Morse decrees. Under the Morse Decree, the A to L users (a designated group of water rights in Sevier Valley above Vet-million Dam) were awarded **year-round** rights. These users, except for Monroe South Bend Irrigation Company and Vet-million Irrigation Company, gave up their winter rights for storage in Piute Reservoir. During this process, the Millard County rights were decreased and the Sanpete County rights were increased.

These events led to a final determination of water rights on the Sevier River system. On November 30, 1936, Judge **LeRoy Cox** signed what is now known as the "Cox Decree."<sup>13</sup>

This decree divided the river system into two distribution zones with the exception of storage rights in the Piute Reservoir and the Sevier Bridge Reservoir. Zone "A" includes the river and tributaries above and including the Vermillion Canal Company diversion dam just east of Richfield. Zone "B" includes all rights from the Sevier River and tributaries below the Vermillion Canal Company diversion dam.

The decree also states that all rights provided for the use of waters of the Sevier River System in Zone A and Zone B shall be, so far as zones are concerned, independent of each other. All rights, except for storage rights in Sevier Bridge and Piute reservoirs, to be diverted in Zone A being primary to and shall have priority over all rights in Zone B. Beneficial use shall be the basis, the measure and the limitation of all rights.

Table 6-1 PIUTE RESERVOIR/SEVIER BRIDGE RESERVOIR WATER RIGHTS		
Priority	Storage Right (acre-feet)	Reservoir
1st	89,280	Sevier Bridge Reservoir
2nd	40,000	Piute Reservoir
3rd	75% or 32,000	Sevier Bridge Reservoir
4th	25% of 32,000	Piute Reservoir
5th	13,720	Sevier Bridge Reservoir
5th	75% of 75,000	Sevier Bridge Reservoir
5th	25% of 75,000	Piute Reservoir
6th	85% of balance	Sevier Bridge Reservoir
6th	15 % of balance	Piute Reservoir
Note: If there is sufficient water, both reservoirs could be filled simultaneously.		

An agreement was made in 1938 making changes regarding the stipulated rights of the owners of Sevier Bridge Reservoir and the Piute Reservoir and Irrigation Company. The 1938 Agreement encouraged the release of storage water due Sevier Bridge Reservoir from Piute Reservoir after January 1 instead of later in the season. In order to reduce the large transmission losses without jeopardizing the receipt and use of water allocated under the Cox Decree to the Piute Reservoir and Irrigation Company, an estimation by the Sevier River Commissioners of the storage water accretion between Piute Reservoir and Sevier Bridge Reservoir is required. In the event the estimation results in the release of storage water belonging to Piute Reservoir that could have been retained by Piute Reservoir, the excess release less annual losses would be the first water captured by Piute Reservoir in the next succeeding year.

Piute Reservoir and Irrigation Company is the owner of approximately 1,200 shares of Deseret Irrigation Company water stock. If the water cannot be exchanged in the year accumulated, this water, less losses, can be held in Sevier

Bridge Reservoir to be exchanged in the next succeeding year. The 1938 Agreement provided for the exchange of these and other Zone B waters.

The first and most important item of the 1938 Agreement was the modification of the Four Party Contract of 1913. The wasteful practice of allocating the first 104,000 acre-feet of the annual water supply to each of the owners of Sevier Bridge Reservoir and consequently to each of the irrigation companies' stockholders on a "use or lose" basis was changed. This change allowed each stockholder in the five irrigation companies owning Sevier Bridge Reservoir to holdover and manage his allocated water from year to year. This practice yields the most beneficial use of the ownership of water stock shares.

During the 1940s, there was increased interest by the water users in Panguitch Valley to rebuild the Hatch Town Dam and Reservoir. There were 23 water users who submitted applications to the State Engineer for a change in place of diversion and use. On protest of the water users below Kingston measuring station, the State Engineer

rejected all applications. This decision was appealed to the district court where the State Engineer's ruling was reversed. This decision was appealed to the Supreme Court of Utah. The Supreme Court ruled that the applications must be granted based on the water savings measures proposed under the following conditions: The amount and quantity of water flowing at the Kingston measuring station on each and every day of every year operating under such changes must be maintained the same as it would have been had the operations continued under the old system without the changes being made. The ruling came on May 28, 1954. In effect, this killed reconstruction of Hatch Town Dam at this time. (East Bench Irrigation Co. V. Deseret Irrigation Co., 2 Utah 2d 170,271 P.2d 449: Utah 1954).

As time passed, one thing became evident. Much of the water diverted for irrigation would show up downstream as return flow to the river. Even below dry dams, the river soon starts to flow again downstream, at times to near prediversion levels. This phenomenon has also complicated the management of the water rights. For instance, when an irrigation water right is transferred to another subbasin, only the depletion part can be moved and the irrigated lands under the water right must be abandoned if existing water rights are to remain unimpaired.

The irrigation practices have created a somewhat predictable diversion-return flow pattern to the point it has become manageable, but proposed use changes still invoke controversy. Battles over the management of the



Vermillion Dam divides Zones A and B

water resources continue to this day, although they are less intense. They will probably continue into the future at some level.

### 6.3 MANAGEMENT ENTITIES AND SYSTEMS

The Sevier River Water Users Association, Inc. is an organization representing irrigation water companies along the Sevier River main stem. The association is composed of a president, a board of directors and a secretary. The two river commissioners, one for Zone A and one for Zone B, are recommended for appointment and paid by the water users but are employees of the State Engineer. The association also communicates water users concerns to the commissioners and the Division of Water Rights.

The Upper San Pitch River Distribution System covers the area down to the grade crossing east of Ephraim. The Lower San Pitch River Distribution System covers the lower part of the San Pitch River system from the Ephraim-Olsen Dam to its confluence with the Sevier River. Water rights are administered by an upper and lower river commissioner recommended for appointment and paid by the water users but who are employees of the State Engineer. The water users in the upper and lower San Pitch River are organized and function similar to the Sevier River water users organization.

There is no organization representing the water users in Pahvant Valley. Pahvant Valley does not have a river commissioner to regulate the diversion of tributary water to the irrigation companies and systems so each irrigation company hires a water master to divide and regulate the water. Some systems divide water among shareholders according to the number of shares they own and the flow available. During high flows, water is divided into two or more streams. Water is delivered on turns in rotation.

The Central Utah Water Conservancy District was established March 2, 1964 and covered seven counties in north central Utah. Garfield, Piute, Sevier, Sanpete and Millard counties in the Sevier River system petitioned to join the district in early 1967. This was approved by the

district board in May 1967 and ratified by the Fourth Judicial Court in June 1967. In 1993, Millard and Sevier counties petitioned to withdraw from the district in accordance with Section 206 (a) of the Central Utah Project Completion Act. The Central Utah Water Conservancy District Board approved the Millard County petition June 15, 1994 and the Sevier County petition September 21, 1994. The Central Utah Project Completion Act specifically excluded importing any project water into the Sevier River Basin. There is now the problem of how to assist the remaining counties.

The Sanpete County Water Conservancy District, Millard County Water Conservancy District, Kane County Water Conservancy District and Eastern Iron County Water Conservancy District cover all or part of their respective counties. The Upper Sevier River Water Conservancy District serves the upper Sevier River area.

Unorganized groups and individuals also have water rights and serve their own area. There are also municipalities and local culinary water systems with management responsibilities. The final discussions regarding use of a water right rests with the entity retaining ownership.

### **6.3.1 Agricultural Water Management**

Agricultural water management is carried out primarily by mutual irrigation companies at the local level. These companies operate canal distribution systems and storage reservoirs, either separately or jointly. Table 6-2 presents data on existing lakes and reservoirs. Larger lakes and reservoirs are shown on Figure 6-1. Flood control structures with a high-hazard safety rating are also shown. See Table 7-1 for data on high-hazard dams. Many additional sites have been investigated over the years. Some of these sites are shown for information purposes in Table 6-3.

The river commissioners are responsible for regulating diversions according to established water rights. The mutual irrigation companies are responsible for managing their water after it enters the canal systems. Water masters are hired by the companies to make sure

the water is delivered and used according to company policy.

Many of the irrigation companies also deliver secondary water to cities and towns for lawn and garden use. Some of these are open ditch systems although many are converting to pipelines as the demand and need increases. This gives the companies better control as well as safety and conservation benefits.

The irrigation companies serving areas larger than 1,000 acres are listed in Table 6-4 and are shown on Figure 6-2. There are about 103 companies serving areas smaller than 1,000 acres. These areas are served by mutual irrigation companies, water user groups, associations or individuals.

### **6.3.2 Municipal and Industrial Water Management**

Most of the municipal and industrial water is managed by cities and towns, usually through their public works staff or volunteer members of the community. These water systems are described in Section 11, Drinking Water.

There are a few industries that operate their own systems. These are discussed in Section 18, Industrial Water.

### **6.3.3 Waterfowl Management Areas**

There are two waterfowl management areas in the Sevier River Basin. One is the Manti Meadows Wildlife Management Area located west of Manti on the San Pitch River covering about 480 acres. The other is the Topaz Slough northwest of Delta.

## **6.4 PROBLEMS AND NEEDS**

Many of the management problems are the inability to deliver water to the **headgate** in an efficient and timely manner. Long travel times between reservoir releases and arrival at canal diversions is inefficient and can waste water. Manual control of diversion facilities makes it difficult to respond to changes in stream flow in a timely manner.

Table 6-2 EXISTING LAKES AND RESERVOIRS							
Subbasin/Name	County	Owner	Source Stream	Capacity (acre-feet)	Area (acres)	Use <sup>a</sup>	Data Source <sup>b</sup>
<b>PANGUITCH VALLEY</b>							
Navajo Lake	Kane	Sevier River System		14,220	730	IR,RE	WSP 920
Panguitch Lake	Garfield	W Pang Irr & Res Co	Panguitch Cr	23,730	1,248	IR,RE	WSP 920
Dog Valley	Garfield	Unknown	Eckard Can Cr	430	175	IR	WSP 920
<b>EAST FORK SEWER</b>							
Booby Hole	Sevier	King Ranch	Booby Hole Cr	483	48	IR	WSP 920
Koosharem	Sevier	Koosharem Irr Co	Otter Cr	3,858	340	IR	WSP 920
Lower Box Creek	Piute	Beaver Cr Irr Co	Box Cr	231	21	IR	S E
Otter Creek	Piute	Otter Cr Res Co	Otter Cr	52,662	2,520	IR,RE	SRBI Topog
Pacer Lake	Garfield	Jensen & Duncan	Center Cr	108	27	IR,RE	
Pine Creek	Garfield	Div Wildlife Resources	Pine Cr	1,808	77	RE	WSP 920 & DWR
Pollywog Lake	Garfield	Bench Irr Co	Antelope Sp	500	30	IR	S E
Tropic	Garfield	Tropic & E Fork Irr Co	E Fork Sevier R	1,850	170	IR,RE	SRBI
Upper Box Creek	Piute	Beaver Cr Irr Co	Box Cr	1,401	62	IR	
<b>JUNCTION • MARYSVALE</b>							
Barney lake	Piute	Dry Cr Irr Co	Doxford Cr	172	19	IR	
Manning Meadow	Piute	Div Wildlife Resources	Manning Cr	1,000	50	RE	
Piute	Piute	Piute res & Irr Co	Sevier river	71,826	2,508	RE	SRBI Topog
<b>SEVIER VALLEY</b>							
Annabella	Sevier	Cottonwood Irr Co	Cottonwood Cr	230	19	IR	FS Topog
Big Lake	Sevier	Glenwood Irr Co	Water Cr	950	123	IR,RE	CNI
Deep Lake	Sevier	Cottonwood Irr Co	Cottonwood Cr	290	29	IR	CNI
Farnsworth Lake	Sevier	John Jorgeson	Gooseberry Cr	100	12	IR	CNI & WSP 920
Lost Creek	Sevier	Lost Cr Irr Co	Lost Cr	400	20	IR	SRBI
Magelby	Sevier	John Magelby	Monroe Cr	510	14	IR,RE	
M.C.-S.F. DB	Sevier	Glenwood Town	Mill Canyon	200	20	F	SRBI
Redmond Lake	Sevier	Redmond Irr Co	Redmond Springs	1,080	160	IR,RE	SRBI
Rex Reservoir	Sevier	Lost Cr Irr Co	Lost Cr (off str)	975	46	IR,RE	CNI
Rocky Ford	Sevier	Rocky Ford Canal Co	Sevier River	1,700	180	IR	SE
Skutumpah	Sevier	Salina Cr Irr Co	Skutumpah Cr	1,360	40	IR,RE	SRBI Topog
Soldier Canyon	Sevier	Sevier County	Soldier Canyon			F	SRBI
Three Creeks	Sevier	Sevier Valley Canal Co	Three Crks	1,000	160	IR	WSP 920
Willow Creek	Sanpete	Willow Cr Irr Co	Willow Cr	988	138	IR	CNI & SCS

Table 6-2 Continued ••

Subbasin/Name	County	Owner	Source Stream	Capacity (acre-feet)	Area (acres)	Use	Data Source
<b>SANPETE VALLEY</b>							
Chester Ponds	Sanpete	Chester Irr Co	Oak Creek	550	130	IR	CNI
Fairview Lake	Sanpete	Cottonwood Irr Co	Gooseberry Cr	2,180	80	IR	CNI
Gunnison	Sanpete	Gunnison Irr Co	San Pitch River	20,264	1,287	IR	L
Nine Mile	Sanpete	Gunnison Irr Co	Nine Mile Cr	3,500	213	RE	WSP 920
Sevier Bridge	Juab	Consol Sevier Br Co	Sevier River	236,145	66	IR	SRBI Topog
Palisades	Sanpete	Manti Irr & Res Co	Six Mile Cr	780	18	IR	SE
Twin Lake	Sanpete	Mayfield Irr Co	Twelve Mile Cr	175	600	IR	WSP 920
Wales	Sanpete	Silver Cr Res Co	Silver Cr	1,450		IR	CNI
<b>SCIPIO-LEVAN</b>							
Chicken Creek	Juab	Juab Lake Irr Co	Chicken Cr	1,500	510	IR	SRBI WSP 920
Scipio Lake	Millard	Scipio Irr Co	Ivie Cr	7,600	1,190	IR	SRBI
<b>DELTA</b>							
DMAD	Millard	DMAD Companies	Sevier River	10,991	1,199	IR	L
Fool Creek #1	Millard	Central Utah Water Co	Fool Cr/Sevier R	17,781	1,200	IR	SRBI WSP 920
Fool Creek #2	Millard	Central Utah Water Co	Fool Cr/Sevier R	5,217	650	IR	SRBI WSP 920
Gunnison Bend	Millard	Abraham Irr Co &	Sevier River	5,000	706	IR	SE
Sevier Lake	Millard	Public Domain & State Lands	Sevier River	Limited	only by	supply	CNI
Dutchman	Beaver	Unknown	Wah Wah Sp	220	63	IR	CNI
<b>PAHVANT VALLEY</b>							
Meadow Creek DB	Millard	Meadow Cr Irr Co	Meadow Cr	100	10	IR, F	scs
Corn Creek DB	Millard	Corn Cr Irr Co	Corn Cr	89	22	IR, F	SE
a IR- Irrigation, RE • Recreation, F • Flood Control, S • Stockwater b WSP • Water Supply Paper, SRBI • USDA Sevier River Basin Investigation, FS • Forest Service, CNI • Conservation Needs Inventory, SCS • Soil Conservation Service, SE • State Engineer, L • Local							

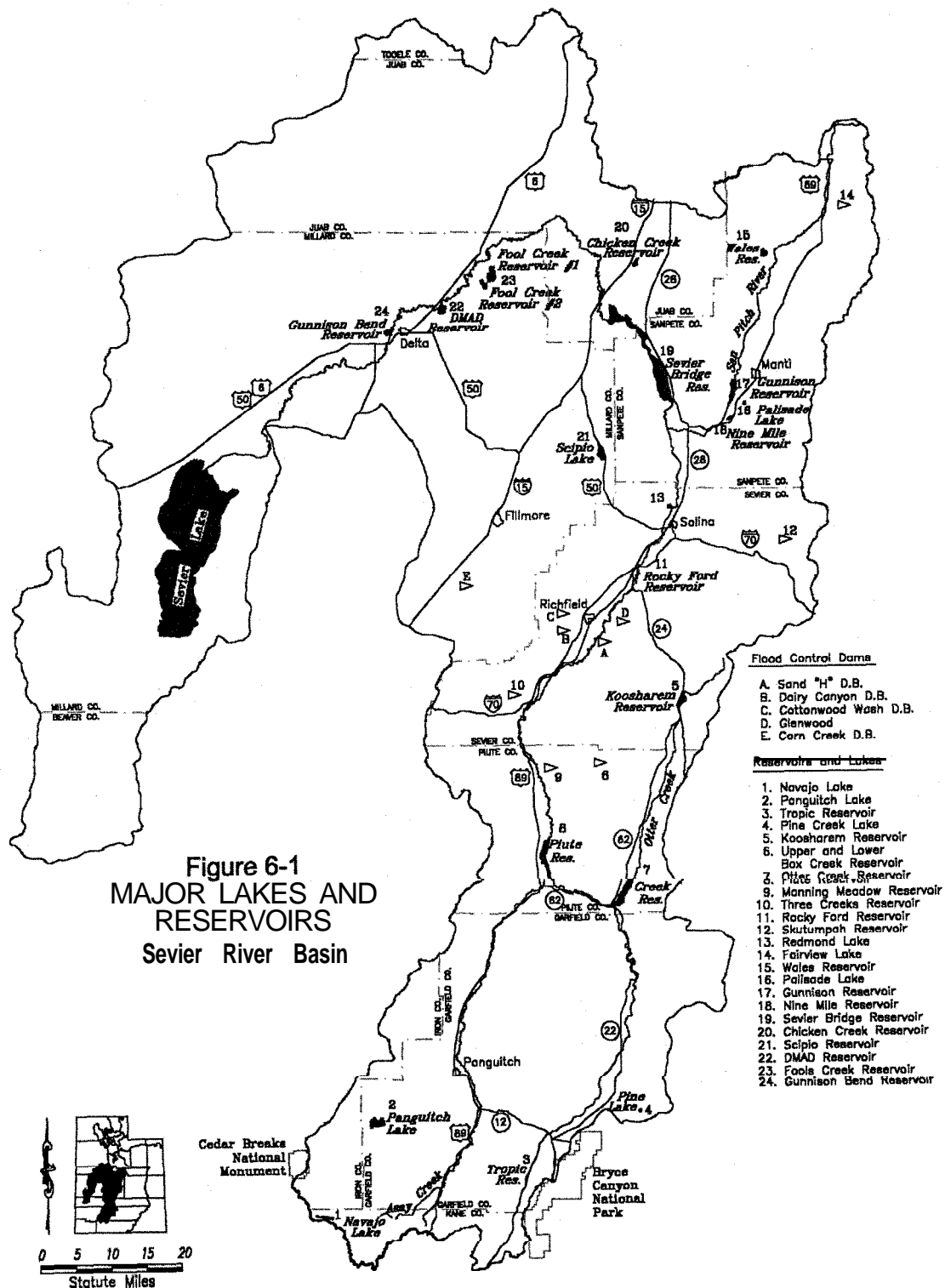


Table 6-3 <sup>17</sup> SELECTED POTENTIAL RESERVOIR SITES			
County/Name	Stream	Capacity (acre-feet)	Surface Area (acres)
<b>Garfield</b>			
Circleville Canyon	Sevier River	4,000	200
Hatchtown	Sevier River	21,200	<b>630</b>
West Panguitch	Panguitch Creek	500	<b>34</b>
<b>Juab</b>			
Chicken Creek	Chicken Creek	<b>455</b>	<b>50</b>
<b>Millard</b>			
Chalk Creek	Chalk Creek	7,400	150
Corn Creek	Corn Creek	4,000	140
<b>Sanpete</b>			
Blue Meadow	Six Mile Creek	1,100	50
Dairy Dam	Highland Canal	150	20
Narrows	Gooseberry Creek	14,500	600
Source: Unpublished report by Division of Water Resources. Note: These sites have been investigated by various entities over a period of many years. Their listing does not indicate construction is anticipated. This is for information purposes only.			

This points out the need for real-time monitoring and control facilities to reduce loss of water to individual irrigation companies.

Inefficient on-farm management of water reduces crop production through poor distribution, causing some areas to be short of water while others receive too much. Over-irrigation can erode the soil and transport sediment downstream. Deep percolation of water beyond the root zone leaches salts out of the soil and into the groundwater, reducing its quality.

Hatch Town Reservoir has been considered for storage of water for recreation, water quality and irrigation. Construction of this reservoir

would require transfer of water rights, probably from Panguitch Valley, in order to alleviate any downstream impact. Winter water rights would have to be passed through since they are part of the storage rights in Piute and Sevier Bridge reservoirs.

There is a need for storage on both Chalk Creek near Fillmore and Corn Creek near Kanosh. These sites have been studied to various degrees. These reservoirs could regulate peak flows for later use.

There are other needs for reservoirs throughout the system. These would be regulatory rather than long-term storage. West Panguitch Reservoir on Panguitch Creek just

Table 6-4  
MAJOR IRRIGATION WATER COMPANIES

Subbasin/Company	Service Area (acres)	County
<u>Panguitch Valley</u>		
Hatch Irr Co	1,010	Garfield
Long Canal & E Bench Irr Co	2,460	Garfield
East Panguitch Irr Co	1,260	Garfield
West Panguitch Irr Co	4,350	Garfield
<u>East Fork Sevier</u>		
Bench Irr Co	1,000	Garfield
Coyote and East Fork Irr Co	1,400	Garfield-Piute
Koosharem Irr Co	2,420	Sevier-Piute
Box Creek Irr Co	2,110	Piute
Kingston Irr Co	1,090	Piute
<u>Circleville-Matysvale</u>		
Circleville Irr Co (3 canals)	4,230	Piute
Bullion Creek Irr Co	1,310	Piute
<u>Sevier Valley</u>		
Joseph Irr Co	1,400	Sevier
Sevier Valley Canal Co	4,280	Sevier
Piute Res & Irr Co	14,000	Sevier-Sanpete
Monroe-South Bend Irr Co	2,630	Sevier
Monroe Irr Co	2,910	Sevier
Brooklyn Irr Co	1,060	Sevier
Annabella Irr Co	2,280	Sevier
Elsinore Irr Co	1,200	Sevier
Richfield Canal Company	8,410	Sevier
Cove River Irr Co	1,060	Sevier
Vermillion Irr Co	4,290	Sevier
Cedar Ridge Irr Co	2,230	Sevier
Willow Bend Irr Co	1,680	Sevier
Rocky Ford Canal Co	3,230	Sevier
Lost Creek Irr Co	2,000	Sevier
Gooseberry Creek Irr Co	1,060	Sevier
Salina Creek Irr Co	2,050	Sevier
Redmond Lake Irr Co	1,280	Sevier
West View Irr Co	1,610	Sevier
Willow Creek Irr Co	1,230	Sevier
Dover Irr Co	2,050	Sanpete
Gunnison-Fayette Irr Co	3,120	Sanpete

Table 6-4 Continued . .  
MAJOR IRRIGATION COMPANIES

Subbasin/Company	Service Area (acres)	County
<b><u>Sanpete Valley</u></b>		
Birch Creek Irr Co	1,300	Sanpete
Gooseberry-Cottonwood Irr Co	1,360	Sanpete
Moroni-Mt Pleasant (M&M) Irr Co	3,510	Sanpete
North Creek Irr Co	1,850	Sanpete
Pleasant Creek Irr Co	1,810	Sanpete
Pleasant Creek Highland Irr Co	1,820	Sanpete
<b><u>Moroni Irr Co</u></b>	2,190	Sanpete
Silver Creek Irr Co	1,190	Sanpete
Twin Creek Irr Co	2,120	Sanpete
West Point Irr Co	2,000	Sanpete
Cedar & Twin Creek Sloughs	1,100	Sanpete
Horseshoe Irr Co	4,640	Sanpete
Fountain Green Irr Co	3,290	Sanpete
Ephraim Irr Co	5,350	Sanpete
Ephraim-Willow Cr Irr Co	1,630	Sanpete
Manti-Willow Creek Irr Co	1,350	Sanpete
Island Irr Co	4,820	Sanpete
Rock Dam Irr Co	1,450	Sanpete
Sanpitch River Drainage Dist	2,700	Sanpete
Manti Irr Co	5,200	Sanpete
North Six Mile Irr Co	1,270	Sanpete
Sterling Irr co	1,180	Sanpete
Mayfield Irr Co	3,000	Sanpete
Gunnison Irr Co	13,570	Sanpete
<b><u>Scipio-Levan</u></b>		
Levan Irr Co	2,930	Juab
Scipio Irr Co	4,950	Millard
Central Utah Canal	4,680	Millard
Learnington Irr Co	1,180	Millard
McIntyre Investment Co	1,100	Millard
<b><u>Delta</u></b>		
Fool Creek Irr Co	1,040	Millard
Oak Creek Irr Co	1,830	Millard
Delta Canal Co	24,230	Millard
Melville Irr Co	10,800	Millard
Deseret Irr Co	22,470	Millard
Abraham Irr Co	13,200	Millard
<b><u>Pahvant Valley</u></b>		
<b><u>Holden Irr Co</u></b>	1,280	Millard
Chalk Creek Irr Co	3,200	Millard
Pine Creek Irr Co	1,100	Millard
Meadow Irr Co	4,350	Millard
Corn Creek Irr Co	4,000	Millard
Note: Acreages are taken from various surveys and may not agree with adjudicated areas.		



above town is one of these as is Dairy Reservoir east of **Centerfield**. Devil's Pass Water Company is also considering a regulatory reservoir just north of Fairview.

There are areas of high erosion resulting in large sediment loads being deposited in storage reservoirs. It may be possible to regain all or part of this lost storage capacity by increasing the dam heights. Alternate sites may also be available to recover this lost capacity. It may also be feasible to excavate sediment deposits to regain lost storage capacity although this could become costly. These options would have to meet all environmental and legal criteria and requirements.

Some concern has been expressed about the water leaving the river system and flowing into Sevier Lake. Uses for this water are limited. Some of the water below the last gage is diverted into the Conk Ditch and the Cropper and Lincoln Ditch. Most of the remaining flow is drainage water with total dissolved solids over 10,000 mg/L. About the only feasible use for this water would be for waterfowl habitat. Even then, it may be too saline without introduction of fresh water occasionally.

## **6.5 ISSUES AND RECOMMENDATIONS**

The only issue discussed is real-time monitoring and control systems.

### **6.51 Real-Time Monitoring and Control Systems <sup>45</sup>**

**Issue** - Improved irrigation water management systems and methods can improve control, save water and reduce costs.

**Discussion** - Water is a valuable commodity as well as a finite resource. It is becoming imperative that water be managed and used to obtain the best returns possible. The cost of improving the management and use of water is considerably less than developing additional supplies. A real-time monitoring and control

system is the most cost-effective means available to achieve these goals.

There is often a time lag between the need to change gate settings and the physical ability to make the adjustments. For instance, when flood flows approach diversion structures, there is silt and debris diverted into the canals. A solar-powered control system operated from a base station would make gate closures possible in a fraction of the time and would save a costly clean up operation. A more sophisticated system can be installed for even better control. Instead of adjusting the gates up or down by remote control, a predetermined canal flow can be set and the gates will move automatically to maintain this flow rate.

Monitoring stations can also be established at given reaches of the river system and at critical points along the canals. This will assist the water master in making sure the canal are operating as is intended. This will allow management of the water supply to meet the requirements of the water rights. Communication is by line-of-sight radio and telephone. Repeaters would be required to maintain contact in remote areas.

The Richfield Irrigation Company installation of real-time monitoring on the Sevier River has saved up to 12 percent of its water supply. This could be critical, especially during the inevitable dry years. There will also be a savings in the cost of water management.

**Recommendation** - The San Pitch Water Users should investigate and the Sevier River Water Users should continue to install solar-powered, real-time monitoring and control systems.



Real-Time Monitoring - Richfield Canal